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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/786,260	03/01/2001	Yasuaki Itoh	2543US0P	6283

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EXAMINER	
MITRA, RITA	

ART UNIT	PAPER NUMBER
1653	

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/786,260	ITOH ET AL.	
	Examiner	Art Unit	
	Rita Mitra	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) *4 and 7-10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5 and 6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restriction

Applicants' election without traverse of Group I (claims 1-3, 5 and 6) in response to Office Action of September 23, 2003, filed December 30, 2003 is acknowledged. Applicants also provisionally elect the protein having the amino acid sequence of SEQ ID NO 1. Claims 4 and 7-10 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected invention, there being no allowable generic or linking claim. Therefore, claims 1-3, 5 and 6 are currently pending and are under examination.

Priority

Applicants' claim for foreign priority under 35 U,S,C, 119 (a-d) is acknowledged. However, the English translation of the original application JP 10-250108 filed September 3, 1998 has not been submitted. Therefore the filing date September 2, 1999 for PCT/JP99/04756 is considered as the priority date for the examination of the instant application.

Claim Rejections - 35 USC § 101-Nonstatutory

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 and 2 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. These claims recite "A protein" which reads on the natural, non-patentable, state of the protein. The rejection would be obviated by the insertion of language indicating that the protein was isolated and/or purified, thus being removed from the natural environment.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title"

Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 101 because the specification does not provide either a specific or substantial asserted utility or a well-established utility, and thus, does not support the claimed invention. The proteins of the invention are not supported by either a specific asserted utility or a well established utility because the specification fails to assert any utility for the claimed proteins and neither the specification as filed nor any art of record disclose or suggest any activity for the claimed proteins such that another non-asserted utility would be well established. Note, because the claimed invention is not supported by a specific asserted utility for the reasons set forth above, credibility cannot be assessed.

The specification indicates (see page 2), that the present inventors successfully found cDNA having a novel base sequence at high levels in the lungs, trachea, stomach etc., and found that a protein encoded by said cDNA is a humoral factor actually secreted extracellularly, however specification fails to provide any description of the protein, which has an activity of the humoral factor protein. Further, the specification indicates that (page 2) on the basis of these findings, the inventors arrived at the present invention which provides a protein which has a signal sequence and comprises an amino acid sequence identical or substantially identical with the amino acid sequence represented by SEQ ID NO: 1, however the specification fails to provide any description of the activity of the protein of amino acid sequence of SEQ ID NO: 1, that can be correlated with the activity of humoral factor protein.

General uses of the protein set forth in the specification, include uses in the fundamental study such as molecular weight marker, tissue marker, chromosome mapping, identification of hereditary diseases, design of primer and probe etc. (pages 4); uses for therapeutic or preventive purposes in fields such as inhibition of cancer metastasis etc. In addition present invention is applicable for therapeutic and preventive purposes against diseases such as trachea- and bronchus related diseases etc. (page 4, 5). Examples of many diseases have been listed but the specification does not indicate explicitly the correlation of the role of any composition comprising the protein to a specific disease treatment or prevention. Also, high expression of the

base sequence in lungs, trachea, stomach etc. does not conclude that the protein would be useful in treatment or prevention of cancer metastasis etc. (see page 4). These general uses are not specific and substantial, as they do not require any one particular sequence.

The specification, on pages 30-34, while describing the utility of the protein of the invention indicates at page 30 that because the protein of the present invention is tissue-specifically expressed, it can be used as a tissue marker, that is the protein of the present invention is useful as a marker for detecting tissue differentiation, morbid state, cancer metastasis etc. No evidence has been provided to support this assertion that the protein is specifically expressed in these tissue systems (trachea, bronchus, lung related tissue), and not in other systems.

The specification also fails to describe the utility of the amino acid sequence, which is substantially identical with the amino acid sequence represented by SEQ ID NO: 1, and having substantially homogenous properties with those of a protein having the amino acid sequence of SEQ ID NO: 1. The specification at page 8 defines the 'substantially homogenous properties' as the properties that indicate that the protein in question is secreted and acts as a humoral factor. However, the specification fails to disclose such amino acid sequences that is substantially identical with the amino acid sequence represented by SEQ ID NO: 1 which has substantially homogenous properties indicating that the protein is secreted and acts as a humoral factor.

Claim 2 drawn to a partial peptide of the protein of claim1. The specification at page 10 defines the partial peptide as any peptide derived from the protein of the present invention and having similar properties to those of the full-length protein. However, no such partial peptide has been disclosed which has demonstrated the activity of the humoral factor protein.

The specification has not provided any sequence identity of the protein or percent similarity to the sequence of known member of humoral factor protein or to the sequence of a member that represents a class of humoral factor protein. No activity of the protein has been provided in the specification that can be correlated with humoral factor protein. The specification fails to disclose any property and biological activity of the protein, which share the specified activities of humoral factor protein. The artisan would need to prepare, isolate and analyze the

protein in order to determine its function and use, thus the utility is not substantial. Therefore, only on the basis of base sequence similarity it cannot be interpreted that the protein of invention would have similar activities of humoral factor protein.

Based on the specification (pages 2+), any biological activity of the protein has not been provided. However, generalized statements regarding uses have been provided on pages 2-5 and 25-34 of the specification, but are discussed in the context of being used for further research, but to do what? The function/biological activity of the protein is not per se set forth in the instant specification. One skilled in the art should not have to engage in discovering genomics to learn how to use the invention. Therefore, the utility of the protein that shares structural similarity with humoral factor proteins is not a substantial utility because there is no real world context in which to use a protein having no known activity. This situation requires carrying out future additional research to identify or reasonably confirm a "real world" context of use and therefore do not define specific and substantial utility.

Claim 3 is drawn to a method for producing the protein of claim 1 or the partial peptide. The specification indicates (page 7, 12) that the protein of present invention may be a protein derived from cells or any tissues having such cells, as well as a recombinant protein or a synthetic protein. The generic methods of production of the proteins or the partial peptide by deriving from cells, by recombinant and by synthetic methods have been described in the specification (pages 12-33). Since the specification fails to provide a specific activity of the protein, how a skilled artisan would know that the protein produced by these methods would have the same activity as to the activity of the protein of the present invention. Moreover, the specification does not describe any biological assay to determine the activity of the protein.

Claims 5 and 6 drawn to a method and kit respectively, for screening for a compound promoting or inhibiting the activity of the protein or the partial peptide of the invention. The specification indicates at page 34 that the protein of the present invention is also useful as reagents for screening for a compound, which promotes or inhibits the functions of the protein of the present invention. The method comprises the use of the protein or partial peptide of the

invention (page 33, 34), however when the function of the protein or the partial peptide of the invention is not known how one skill in the art would know how to use the invention.

As discussed above, based on the specification it is unclear what activity the claimed protein possesses and therefore unclear how a person having skill in the art would be using the claimed protein. In summary, the proteins and partial peptides claimed do not have a credible, specific or well-established or even demonstrable utility and therefore lacks utility under 35 U.S.C. 101.

In the instant case, the failure of the specification to specifically identify why the claimed invention is believed to be useful renders the claimed invention deficient under 35 USC 101. No specific biological activity has been identified for the protein set forth in SEQ ID NO: 1 other than the fact that the protein may have a similar activity of humoral factor protein (p. 2). The person having ordinary skill in the art would not be able to identify any specific activity for the protein comprising or related to SEQ ID NO: 1 based on its structure alone for the reasons set forth above. General statements that a composition has an unspecified biological activity or that do not explain why a composition with that activity is believed to be useful fails to set forth a "specific utility." Brenner v. Manson, 383 US 519, 148 USPQ 689 (Sup. Ct.1966) (general assertion of similarities to known compounds known to be useful without sufficient corresponding explanation why claimed compounds are believed to be similarly useful is insufficient under 35 USC 101).

Claim Rejections - 35 USC § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 5, 6 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific or substantial asserted utility or a well

established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1 and 2 are directed to proteins and partial peptides of the sequence of SEQ ID NO: 1. As discussed above, based on the specification (pages 2-12, 25-34) it is unclear what activity the claimed proteins and variants possess, and therefore unclear how a person having skill in the art would have used the claimed variants. The specification does not describe the functional properties of these variants, and the structural information is limited. Therefore, how a skilled artisan would know how to use the protein.

Claim 3, directed to a method of producing the proteins and partial peptides of the sequence of SEQ ID NO: 1. As discussed above, the generic methods of production of the proteins or the partial peptide by deriving from cells, by recombinant and by synthetic methods have been described in the specification (pages 12-33). However, when the structure and function of the partial peptides are not known, how a skilled artisan would know that the protein produced by these methods would have the same activity as to the activity of the protein and partial peptide of the present invention.

Claims 5 and 6 are directed to a method and kit respectively, for screening for a compound promoting or inhibiting the activity of the protein or the partial peptide of the invention and a kit. The method comprises the use of the protein or partial peptide of the invention (page 33, 34), however the specification fails to describe the activity of the proteins and partial peptides. If the function of the products is not known how one skilled artisan would know how to use the product.

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

"The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."

Claims 1 and dependent claims 2, 3, 5, 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite since it is unclear by absence in the claim recitation whether or not the amino acid sequences, which are substantially identical to the amino acid sequence of SEQ ID NO: 1 are active, or what that activity may be. Claims 2, 3, 5 and 6 are included in this rejection for being dependent on a rejected claim and not correcting the deficiency of the claim from which they depend. "Identical" is an absolute term, what is "substantial identical" means?

Claim 2 is indefinite because of using the term "partial peptide." it is unclear what that partial peptide is, what is the structure and function of these peptides? Claims 3, 5 and 6 are included in this rejection for being dependent on a rejected claim and not correcting the deficiency of the claim from which they depend.

Claim 3 is indefinite as to "salt thereof." It is not clear how the salt of the protein or the partial peptide is made.

Claim 5 is indefinite because it lacks essential steps as claimed in the method of screening for a compound. The omitted steps are: contacting the protein and/or partial peptides with the compounds, binding the protein and/or partial peptides with the compounds and a step whereby the desired outcome using the proteins and partial peptides can be determined.

Claims 5 and 6 are indefinite by reciting, "promoting or inhibiting." It is not clear whether the compounds screened would promote the activity of the protein or they would inhibit the activity of the protein.

Claim Rejections – 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim 1, and dependent claims 2, 3, 5, 6 are rejected under 35 USC 102 (a) as being anticipated by Rosen et. al. (WO 98/45712, October 15, 1998, IDS reference A1). Rosen et al. teach human secreted proteins and variants thereof, polynucleotides encoding the said proteins, uses of such proteins and their production (see Abstract, page 2, 26, 31). Rosen et al. also teach vectors, host cells, and recombinant methods for producing the protein (see page 2, 36); Rosen et al.'s invention further relates to screening methods for identifying binding partners of the polypeptides (page 42). As evidenced by Feng, Rosen et al's protein has 81.8% sequence identity to amino acid sequences of SEQ ID NO: 1, (see Feng et al., "Polypeptide encoded by gene 7 clone HJPDJ64," January 28, 1999, alignment result 32, database A_Geneseq_19Jun03, Accession NO: AAW83953), see Table 1 at page 20 of WO '712 reference. Rosen et al.'s protein is considered for the protein which is substantially identical (defined as 50% or more, page 8 of specification) to the amino acid sequence of SEQ ID NO: 1 (claim 1); and the fragments and variants are considered for the partial peptides (claim 2); recombinant production of the proteins using bacterial vector like pQE70, and host cell E. coli (page 36) are considered for the method of claim 3; and screening methods for a compound using the protein is considered for the method of claim 5 of instant application. Thus Rosen et al. anticipates claims 1, 2, 3, 5 and 6 of the instant application.

Conclusion

No claims are allowed.

Inquiries

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Rita Mitra whose telephone number is (571) 272-0954. The Examiner can normally be reached from 9:30 a.m. to 6:30 p.m. on weekdays. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Dr. Christopher Low, can be reached at (571) 272-0951. Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax Center. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Fax Center number is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-0547.

Rita Mitra, Ph.D.
March 14, 2004

KAREN COCHRANE CARLSON, PH.D
PRIMARY EXAMINER